Personalized Learning Analytics-Based Feedback on a Self-Paced Online Course

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Personalized Learning Analytics-Based Feedback on a Self-Paced Online Course

ABSTRACT: Self-regulated learning (SRL) skills are very important on self-paced online courses, where students have great autonomy but limited guidance. We combined goal setting strategies and personalized feedback to support students' self-regulation and keep them engaged in a self-paced online course. We describe our setup and the findings of the project.

Keywords: self-regulated learning, goal setting, OnTask

1 BACKGROUND

One of the most promising applications of learning analytics is to use data to scale the provision of personalized feedback to students (Pardo et al. 2017). Getting personalized feedback with this approach has been associated with a positive impact on student perception of feedback quality (Pardo et al. 2017) and higher academic achievement (Lim et al. 2019). Moreover, Lim and colleagues (2019) found that patterns of self-regulated learning (SRL) differed between students who received personalized feedback and those who did not.

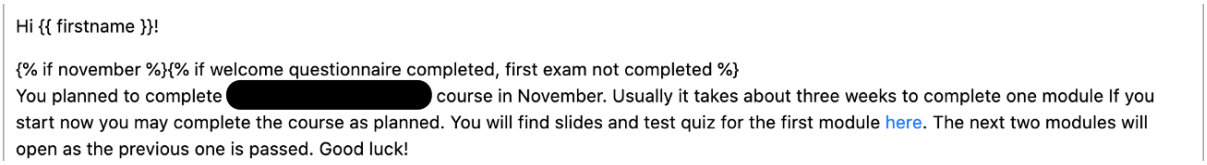
Promoting students' SRL skills will increase their chances of success in online learning. The importance of SRL is highlighted in self-paced setting. Whereas an imposed-pace model stipulates that all learners engage in the same learning activities at specific time periods, the self-paced approach affords more autonomy to learners (Rhode 2009), simultaneously increasing the need for self-regulation.

When applying personalized feedback in a self-paced setting, the feedback process must be designed in a manner that takes each student's pace into account. This can be achieved by asking students to set their goals at the beginning of the course. Goal setting is one of the SRL subprocesses and higher application of goal setting has been associated with increased course completion (Handoko et al. 2019). The goal setting activity can both act as an SRL intervention and provide data for personalization: students can be given feedback in respect to the goals they have set.

2 IMPLEMENTATION

We combined goal setting and personalized feedback on an undergraduate level online business course that students could enrol and complete throughout the academic year (from the beginning of September to the end of July). The course included three modules which were each assessed with an online exam (30 or 35 points each, total 100 points). In previous years, students often registered on the course early on but actually started studying only when the end of semester was approaching. The aim for the academic year 2020-2021 was to reduce the average course completion time as well as increase the completion rate.

The pilot took place in the fall semester 2020. After enrolment, students set their goals by stating which month they intend have the course completed and consented to receive personalized feedback. We used *OnTask* (Pardo et al. 2017) to provide students with personalized feedback. Feedback rounds were carried out twice a month and, on each round, messages were created for meaningful combinations of completion goals (5 alternatives) and course progress (6 alternatives). During the course, each student would get on average three messages encouraging the student to keep on track with the completion goal. An example of *OnTask* is in Figure 1.


Hi {{ firstname }}!

{% if november %}{% if welcome questionnaire completed, first exam not completed %}
You planned to complete [redacted] course in November. Usually it takes about three weeks to complete one module If you start now you may complete the course as planned. You will find slides and test quiz for the first module here. The next two modules will open as the previous one is passed. Good luck!

Figure 1. Using completion goals and course progress as conditions in OnTask.

3 FINDINGS

By the end of October 2020, 258 students had enrolled into the course (156 on previous year). During the first two months more students completed the course (N=21; 8 % of enrolled students) compared to the previous year (N=2; 1 % of enrolled students).

Majority of students (77% - 81%, depending on the feedback round) were willing to receive personalized feedback. Based on the learning management system logs, online activity increased by two to three times the usual activity during the days when the feedback was sent. Furthermore, 26 students replied to the feedback messages by reflecting on their completion goal, for example, stick to the plan, delay completion, or withdraw from the course.

These findings give an early indication that goal setting and personalized feedback supported students' self-regulatory behaviour on the course. Although we cannot be sure if it is due to this intervention, the completion rate during the first two months was higher than on the previous year, which looks promising to meeting the project aims.

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